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Kœleria cristata (L.) Pers.
Melica mutica Walt.
Korycarpus arundinaceus Zea. [Carruth.]
Uniola latifolia Michx.
Dactylis glomerata L.
Poa pratensis L.
Poa autumnalis Muhl. [Smyth.]
Poa sylvestris A. Gray.
Poa compressa L.
Panicularia nervata (Willd.) Kuntze.
Panicularia grandis (S. Wats.) Nash. [Smyth.]
Festuca octoflora Walt. [Carruth.]
Festuca ovina L. [Carruth.]
Festuca elatior L.
Festuca nutans Willd.
Bromus ciliatus L.
Bromus inermis Leyn.
Bromus hordeaceus L.
Bromus secalinus L.
Bromus racemosus L.

Tribe HORDEÆ.

Lolium perenne L.
Agropyron tenerum Vasey.
Hordeum nodosum L.
Hordeum pusillum Nutt.
Hordeum jubatum L.
Elymus virginicus L.
Elymus canadensis L.
Elymus brachystachys Scribn. & Ball. [Charles.]
Elymus striatus Willd.
Hystrix hystrix (L.) Millsp. [Carruth.]

Field Work in Kansas and Texas.

By CHARLES H. STERNBERG.

On April 7, 1919, we left Lawrence in my Ford truck for western Kansas. Mr. Knoblock, of Quincy, Ill., was my driver. After a very disagreeable journey of seven days, on account of rain and bad roads, we reached Quinter, Kan. The next day we made our camp in Mr. Sampson's pasture on Hackberry creek. The canyons were filled with great snowdrifts, and the weather was bad for some time.

Two miles east of camp I found a beautiful plate of the crinoid *Untacrinus socialis*. They covered an area of eighteen square feet. In one case the arcs were spread over the plate for over three feet. This I sent to the state museum at Albany, N. Y.

After leaving this camp we went to the head of the canyon, east of Monument Rocks, in western Gove county. Mr. Lester Olds was my assistant, as Mr. Knoblock had returned home. Here I discovered two very fine specimens.

The first was a nearly complete skeleton, in its natural position, of the small *Pteranodon.* This is the only *Pteranodon* I ever discovered with the bones of the skeleton in place. The American Museum had been unable to mount their skeletons, as the normal position of the vertebræ was unknown. They purchased this specimen and their skilled preparator, Falkenback, prepared it.

The second specimen was a nearly complete skeleton of *Clidastes tortor.* The skull is uncrushed and shows the pterygoid bones, armed with teeth in front of the gullet. It is twelve feet long and I have mounted it in panel. I also secured one of the large *Inoceramus* shells, over three feet in length. This I sent to the British Museum.

My third camp was made at Mr. Martin's ranch, south of Castle Rock, on the brakes of the Smoky Hill river north of Utica. Here I was left entirely alone and had a severe time of it. I was so fortunate, however (and that really is what counts), as to find a splendid skeleton of *Platecarpus,* with all the paddles, breastbones and cartilaginous ribs. Only a few terminal caudal bones were missing from the skeleton. I found it very difficult to handle the big sections in which I took it up. There were two, and they weighed about 500 pounds each. However, by using all the skill I had I succeeded in accomplishing the labor of turning them over. I have mounted this skeleton in a panel. It is 18½ feet long.

The second remarkable fossil vertebrate found here was the skeleton of a *Portheus.* It was preserved from the pelvic fins to the end of the tail, and is the largest *Portheus* I have seen. The spread of the tail fins is five feet. In 1918 my son Levi found a skull and body part of a *Portheus* that is so near in size to this one that I have made a composite skeleton of the two. It is sixteen feet long and will be, as I said, the largest bony fish ever collected from the Cretaceous.

I also found the tail fins, that are the same size as the ones missing from the splendid skeleton we got on Butte Creek in 1918. This I have used in my panel mount of this beautiful fish. It is thirteen feet long, and shows for the first time the spines and supernumeraries. So the correct anatomy of this great fish can now be correctly made out. The one I sent the American Museum years ago had no spines and they were restored as straight, pointed shafts with supernumeraries terminating in clublike ends. A number of others have been mounted that copied this error. In this specimen the spines form a double curve and the supernumeraries the arc of a circle. They lie along the upper curves of the dossal spines.

Mr. Ikenberry drove me down to Gidley's "horse quarry," on the head of Rock creek, in Bristow county, Texas. We went into camp on the 27th of August. Ten skeletons of *Equus scotti* had already been taken out of this quarry. I succeeded in securing the eleventh skeleton. According to Doctor Troxell, the last collector here, the bodies had been carried in by water. He found all the heads pointed toward the east. This helped him form his judgment as to deposition. The head of my skeleton, however, was pointed toward the west. It is also incredible to believe that the bodies, after death by drowning, would rise to the surface and float all together at the same time and be left stranded together at this place. I much prefer to believe that, following the custom of wild horses, their leader, a stallion, had driven them here for water and they got stuck in the quicksand, as the sand in which they are buried becomes quicksand when full of water, and animals to-day are lost where a stream of water flows over it.

All the specimens had been preyed upon by carnivores, it is evident, as parts of the skeletons have been disassociated. In my specimen the right leg, tail and some of the ribs were missing. Some of the ribs had been broken off in their centers, the distal ends missing. A high perpendicular bank on the south side of the quarry had been caved off into it, so I realized the only thing to do was to open a new one. This was a formidable undertaking. I secured the services of a farmer near by, Mr. Stephenson, who with his three sons and three teams and plows and scrapers went to work at $25 a day. We removed a section of clay and sand 20 feet wide, 20 feet deep and 100 feet long to get down to the level, which lay about three feet below a thin layer of clay. We got below the floor in many places and I had about given up hope of making a discovery. One day at noon I had gone in to boil some coffee, as we lunched together. Mr. Stephenson came to lunch and he had a bone of a horse he had plowed up. What a pleasure and surprise. It will cost a good deal of money to lay bare another section to the south, the hill behind it rising rapidly. I have since prepared the specimen into an open mount. I found it difficult work preparing the material, as the bones were fragile and required a great deal of care. The bones had to be strengthened with shellac, and the ribs were strengthened by putting strips of steel in their centers. The skull was over two feet long. With the skeleton is most of the breastbone.

Doctor Francis, of the State College of Texas, came to see it. He pronounces it a four-year-old mare.

I was also so fortunate as to find the hind limbs, pelvic arch and twenty vertebræ of a great bear, which Doctor Matthew tells me is very rare indeed. He was delighted to receive it at the American Museum, New York. On the 27th of September, a month after I reached my camp on Rock creek, I employed Tom McDaniels to drive me home to Lawrence, Kan. We made the trip in five days. The last day we traveled 200 miles. I have been at work ever since preparing the material collected.

Education: Physical and Mental.

J. M. McWharf.

Nature and humanity are the sources from which has come the inspiration essential to the highest development and usefulness of mankind. Comenius deduced his principles of education from nature. Locke preferred the influence of virtuous, humane man. Rousseau, seeing man perverted through his training, believed nature the only true guide. Pestalozzi again is enthusiastic for humanity. And so on down the ages to Wordsworth and Browning, until we are forced to believe that it must be in the nice balance of those necessities natural and human that we shall find the law of perfect growth.

By careful inspection we find there are three essentials necessary in the child's education. First, a development of the mental—a broadening and deepening of the intellectual powers, the power of thought and reason. This work cannot be done with any degree of safety unless coupled with a corresponding physical development. There must exist a perfect coördination be-